

APPLICATION FOR MINOR  
MODIFICATION TO A DTV BROADCAST  
STATION CONSTRUCTION PERMIT  
FCC FILE NUMBER: BPCDT-19991029AGW  
WPAN-DT CHANNEL 40 ERP 600.0 KW  
(MAX-DA) AT 278.4 METERS AAT,  
FRANKLIN MEDIA, INC.  
FORT WALTON BEACH, FL

KESSLER & GEHMAN ASSOCIATES, INC.  
TELECOMMUNICATIONS CONSULTING ENGINEERS

20060509

*Prepared by Ryan Wilhour*

*KG&A*

507 N.W. 60th Street, Suite C  
Gainesville, Florida 32607

## **KESSLER AND GEHMAN ASSOCIATES, INC.**

WPAN-DT FORT WALTON BEACH, FL

PAGE 1

ENGINEERING STATEMENT OF RYAN WILLOUR OF THE FIRM KESSLER AND  
GEHMAN ASSOCIATES, INC., CONSULTING ENGINEERS IN CONNECTION WITH  
AN APPLICATION FOR MINOR MODIFICATION TO A DTV BROADCAST STATION  
CONSTRUCTION PERMIT FCC FILE NUMBER BPCDT-19991029AGW  
LICENSED TO FRANKLIN MEDIA, INC.  
WPAN-DT  
FORT WALTON BEACH, FLORIDA

### PROCLAMATION OF ENGINEER

I, Ryan Wilhour, am an associate of Kessler and Gehman Associates, Inc. with offices in Gainesville, Florida. I am a graduate of the University of Florida with a Bachelor of Science degree in electrical engineering.

This firm has been employed by Franklin Media, Inc. (hereinafter referred to as "FMI") to make engineering studies and to prepare a minor modification application to FCC file number BPCDT-19991029AGW. It is herein proposed to move the transmitter site, change the broadcast antenna, increase the ERP, and increase the effective antenna height.

### ATTACHED FIGURES

In carrying out the engineering studies the following attached figures were prepared:

1. Engineering Specifications (Exhibit E1)
2. Elevation drawing of the antenna system (Exhibit E2)
3. USGS 7.5 minute topographic quadrangle showing the proposed transmitter location and the coordinate lines (Exhibit E3)
4. Antenna elevation, azimuth, and ERP – dBk patterns (Exhibit E4)
5. Map showing the predicted DTV coverage contour. Tabulation of the predicted contour distances, along with relevant elevations and ERPs (Exhibit E5)
6. Allocation Analysis (Exhibit E6)
7. Environmental Impact/ RFR Hazard Analysis (Exhibit E7)

### TRANSMITTER LOCATION

FMI proposes to operate the DTV facilities of WPAN-DT on an existing tower. The FCC tower registration number is 1242292. It is herein proposed to side mount the antenna as demonstrated in Exhibit E2.

**INTERFERENCE ANALYSIS**

The applicant accepts full responsibility for the elimination of any objectionable interference including that caused by intermodulation to facilities in existence or authorized prior to the grant of this application.

**Evaluation toward Class A Stations**

No Spacing violations or contour overlap to Class A stations exist.

**Evaluation toward Landmobile Stations**

No landmobile spacing violations exist.

**FCC Monitoring Stations**

The proposed station is compliant with regard to FCC Monitoring Stations.

**West Virginia quiet zone**

The proposed station is compliant with regard to West Virginia quiet zone.

**Table Mountain**

The proposed station is compliant with regard to Table Mountain.

**Canadian coordination distance**

The proposed facility is within the Canadian coordination distance.

**Mexican coordination distance**

The proposed facility is beyond the Mexican coordination distance.

**AM broadcast stations**

The proposed station is compliant with regard to AM broadcast stations.

## KESSLER AND GEHMAN ASSOCIATES, INC.

### NTSC and DTV

The following DTV and NTSC stations were analyzed for potential interference:

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
32	WNCN	MONTGOMERY AL	127.2	LIC	BLCT	-20020131ACG
32	WDES-CA	DESTIN FL	69.8	APP	BDISTTA	-20051007ACV
33	WHBR	PENSACOLA FL	98.1	APP	BPCT	-20050214AAX
33	WHBR	PENSACOLA FL	97.6	LIC	BLCT	-20001027ABJ
39	970331LQ	DOTHAN AL	139.3	APP	BPET	-19970331LQ
39	960920KM	DOTHAN AL	139.9	APP	BPET	-19960920KM
39	WLOX-DT	BILOXI MS	228.3	PLN	DTVPLN	-DTVP1095
40	WJSU-TV	ANNISTON AL	291.4	LIC	BLCT	-19971009KE
40	WTWC-TV	TALLAHASSEE FL	264.6	CP MOD	BMPCT	-20050412AAI
40	WTWC-TV	TALLAHASSEE FL	241.5	LIC	BLCT	-19990429KJ
40	WTWC-TV	TALLAHASSEE FL	264.6	APP	BFRCTT	-20050729AHV
40	WIRE-CA	ATLANTA GA	384.0	CP	BPTTA	-20040602AAJ
40	WIRE-CA	ATLANTA GA	385.8	LIC	BLTVL	-19960529JC
40	WMGT-DT	MACON GA	356.2	PLN	DTVPLN	-DTVP1119
40	WNOL-TV	NEW ORLEANS LA	329.2	CP MOD	BMPCDT	-20021107AAV
40	WNOL-DT	NEW ORLEANS LA	328.6	PLN	DTVPLN	-DTVP1126
40	WDBD	JACKSON MS	372.0	LIC	BLCT	-20020429ABE
40	WDBD	JACKSON MS	372.0	CP MOD	BMPCT	-20020429ABF
41	WIIQ	DEMOPOLIS AL	186.5	LIC	BLET	-20040120ACY
41	WEIQ	MOBILE AL	118.0	LIC	BLEDT	-20030430AAX
41	WEIQ-DT	MOBILE AL	118.0	PLN	DTVPLN	-DTVP1149
42	WEIQ	MOBILE AL	118.0	LIC	BLET	-19851216KG
44	WJTC	PENSACOLA FL	91.7	LIC	BLCT	-20030129AKX
48	WFBD	DESTIN FL	71.9	CP	BPCT	-19960405XK
48	WDES-CA	DESTIN FL	69.8	LIC	BLTTL	-19970509JB
48	NEW	DESTIN FL	71.9	LIC	BPRM	-20000717AFP

None of the stations above are predicted to receive greater than 2% unique or 10% cumulative interference from the instant application.

### ENVIRONMENTAL IMPACT/RFR HAZARD ANALYSIS

An analysis has been made of the human exposure to RFR using the calculation methodology described in OET Bulletin 65, Edition, 97-01. Exhibit E7 is a RFR study demonstrating compliance within 5% of the most restrictive permissible exposure at any location 2 meters above the ground. Exhibit E7 calculations were made using a frequency of 626 MHz, which is the lower edge of the proposed channel. To account for ground reflections, a coefficient of 1.6 was included in the calculations.

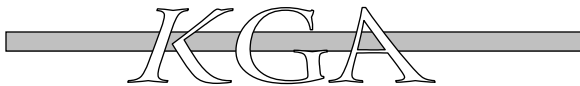
Pursuant to OET Bulletin 65 concerning multiple-user transmitter sites only those licensees whose transmitters produce power density levels greater than 5.0% of the exposure limit are

considered significant contributors to RFR. Since the proposed operation is well within 5% of the most permissible exposure at any location 2 meters above the ground, it is not considered a significant contributor to RFR exposure. Thus, contributions to exposure from other RF sources in the vicinity of WPAN-DT were not taken into account. The instant proposal complies with the FCC limits for human exposure to RF radiation and thus is excluded from further environmental processing.

A chain link fence shall encompass the WPAN-DT support structure if it is not already. The applicant will cooperate with any other users of the tower by reducing the power to the antenna or if necessary completely cutting it off in order to protect maintenance workers on the tower.

DECLARATION OF ENGINEER

The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge. Executed on May 9, 2006.

The logo for Kessler and Gehman Associates, Inc. (KGA) features the letters 'KGA' in a stylized, serif font. The letters are white with a black outline and are positioned in the center of a thick, horizontal gray bar.

Ryan Wilhour

A handwritten signature in blue ink that reads 'Ryan Wilhour'. The signature is written in a cursive, flowing style.

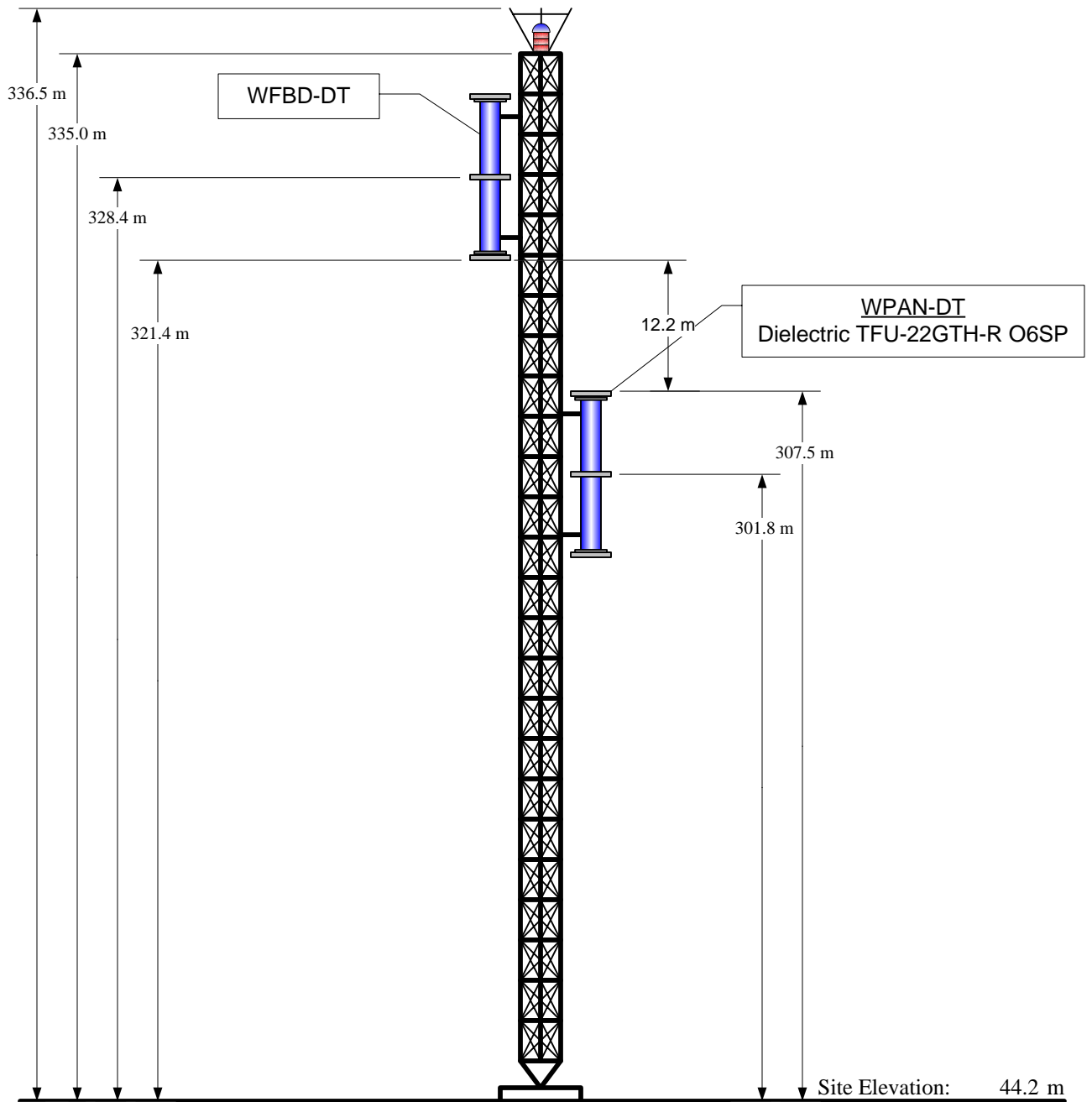
Consulting Engineer

WPAN-DT

FORT WALTON BEACH, FLORIDA

ENGINEERING SPECIFICATIONS

- A. Transmitter Site (NAD 27)
- |                            |                  |
|----------------------------|------------------|
| North Latitude             | 30 ° 59 ' 51.3 " |
| West Longitude             | 86 ° 43 ' 13.2 " |
| Street Address or Location | Cr 37 Bradley    |
- B. Proposed Facility
- |             |           |             |
|-------------|-----------|-------------|
| DTV Channel | Number    | 40          |
|             | Frequency | 626-632 MHz |
- C. Elevations
- |   |         |
|---|---------|
| Height of Site Above Mean Sea Level (AMSL)  | 44.2 m  |
| Overall Height of Structure Above Ground<br>(including all appurtenances)         | 336.5 m |
| Overall Height of Structure Above Mean Sea Level<br>(including all appurtenances) | 380.7 m |
| Effective Height of Antenna Above Ground  | 301.8 m |
| Effective Height of Antenna Above Average Terrain                                 | 278.4 m |
| Effective Height of Antenna Above Mean Sea Level                                  | 346.0 m |
- D. Antenna Parameters – Horizontal Polarization
- |  |           |
|--|-----------|
| Maximum Antenna Gain in Beam Maximum     | 14.25 dB  |
| Maximum Antenna Gain in Horizontal Plane | 13.94 dB  |
| Maximum Effective Radiated Power         | 27.78 dBk |
| In Beam Maximum                          | 600.0 kW  |
| Maximum Effective Radiated Power         | 27.47 dBk |
| In Horizontal Plane                      | 558.7 kW  |



Overall Height AGL:	336.5 m
Overall Height AMSL:	380.7 m
Radiation Center AGL:	301.8 m
Radiation Center AMSL:	346.0 m
Radiation Center HAAT:	278.4 m
Average Terrain:	67.6 m

NAD 27 Coordinates:

N. Latitude: 30° 59' 51.3"

W. Longitude: 86° 43' 13.2"

FCC Tower Registration Number: 1242292

FAA Aeronautical Study Number: 2003-ASO-5859-OE

NOTE: NOT TO SCALE

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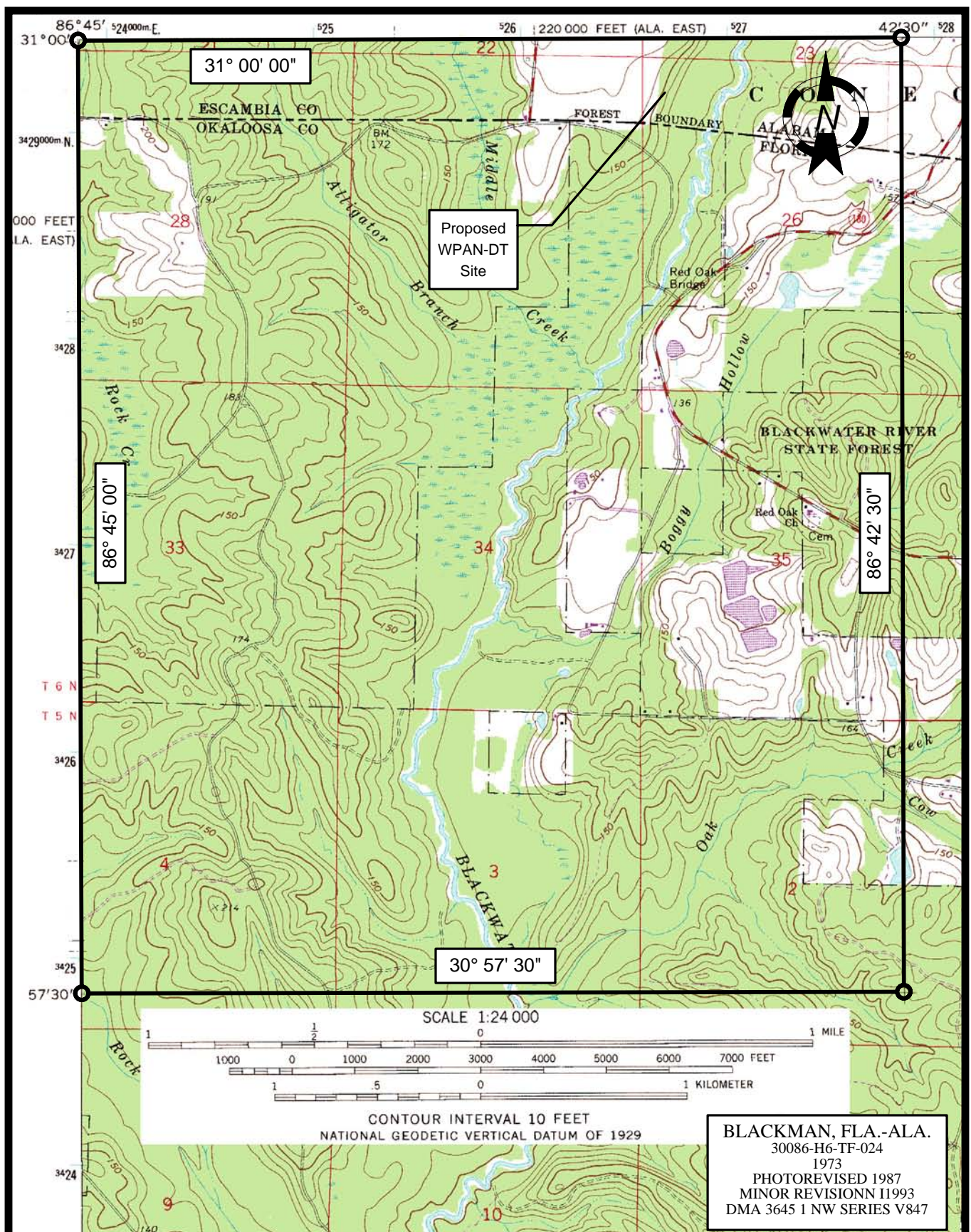
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EXHIBIT E2





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EXHIBIT E3



WPAN-DT

FORT WALTON BEACH, FLORIDA

TABULATION OF RELATIVE FIELD FOR PROPOSED DIRECTIONAL ANTENNA

<u>AZIMUTH</u>	<u>RELATIVE FIELD</u>	<u>AZIMUTH</u>	<u>RELATIVE FIELD</u>
N000°E	0.800	N180°E	0.874
N010°E	0.734	N190°E	0.943
N020°E	0.681	N200°E	0.976
N030°E	0.662	N210°E	0.984
N040°E	0.681	N220°E	0.976
N050°E	0.734	N230°E	0.943
N060°E	0.800	N240°E	0.874
N070°E	0.829	N250°E	0.795
N080°E	0.796	N260°E	0.769
N090°E	0.748	N270°E	0.840
N100°E	0.770	N280°E	0.948
N110°E	0.865	N290°E	1.000
N120°E	0.962	N300°E	0.962
N130°E	1.000	N310°E	0.865
N140°E	0.948	N320°E	0.770
N150°E	0.840	N330°E	0.748
N160°E	0.769	N340°E	0.796
N170°E	0.795	N350°E	0.829

DIELECTRIC

TFU-22GTH-R O6SP

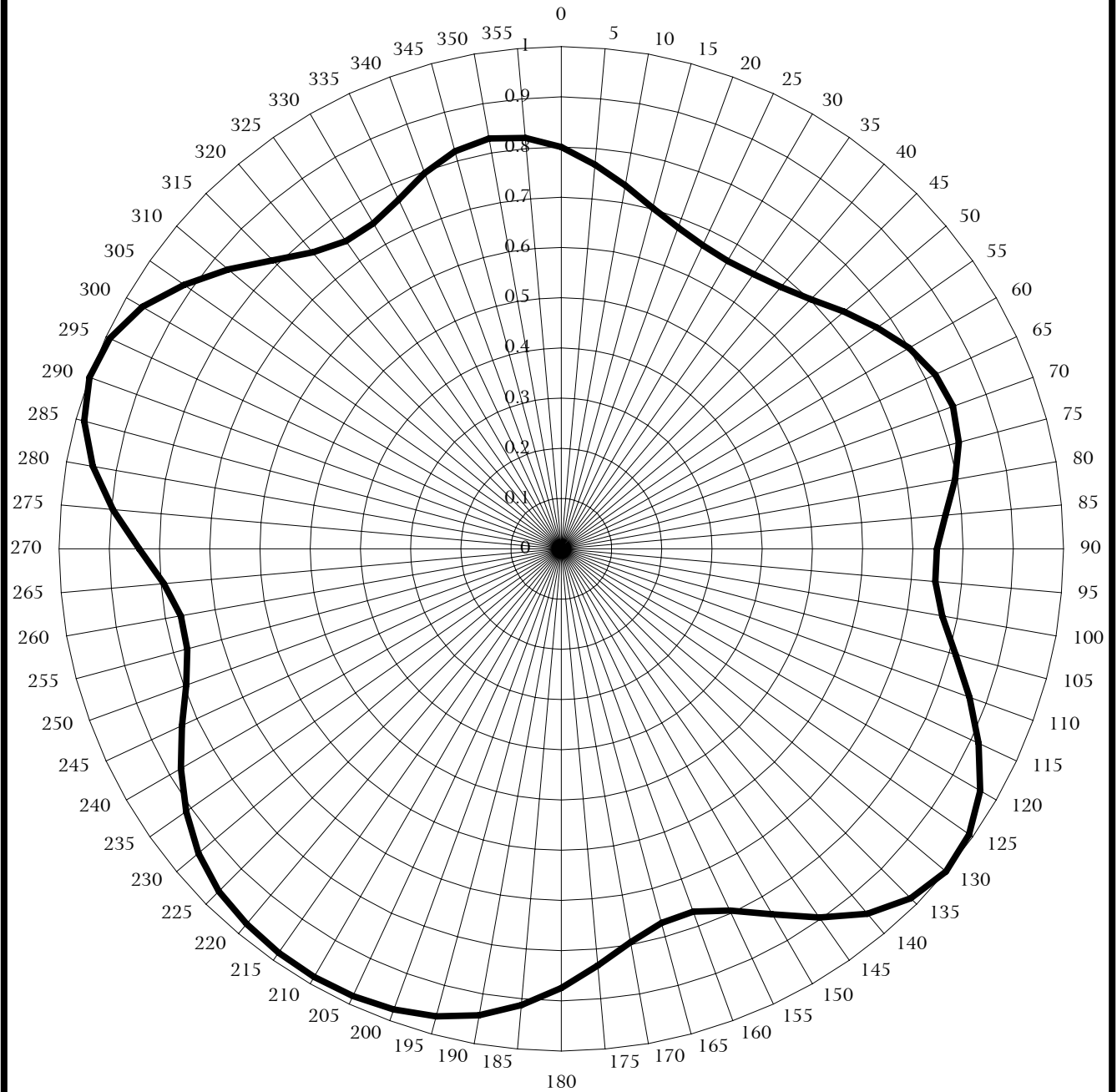
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EXHIBIT E4A

# RELATIVE FIELD AZIMUTH PATTERN



DIELECTRIC TFU-22GTH-R 06SP  
ORIENTED WITH BEAM MAXIMA AT 290° AND 130°  
AZIMUTH GAIN: 1.4 (1.46 dB)

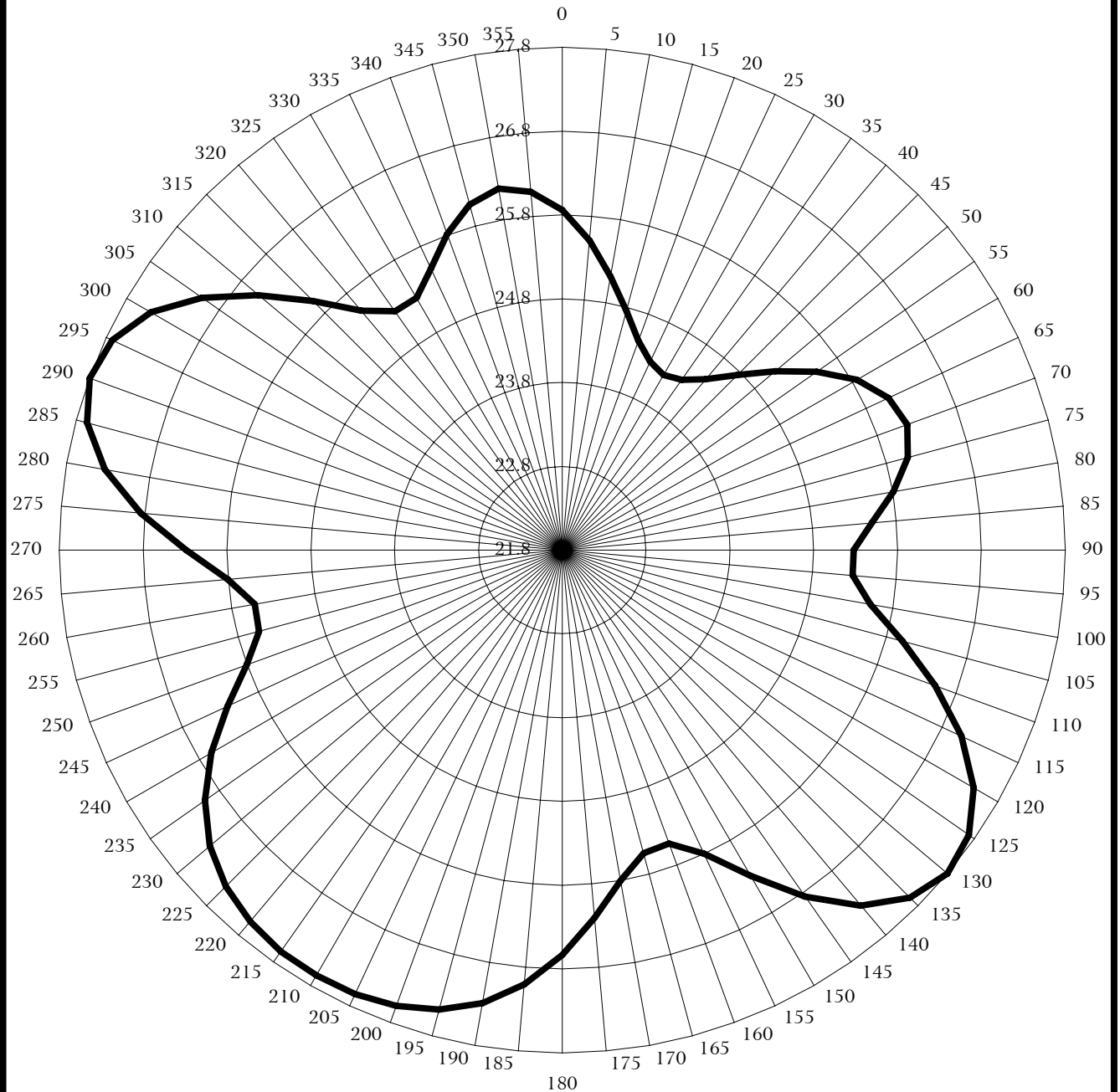
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EXHIBIT E4B

# ERP - dBk



DIELECTRIC TFU-22GTH-R 06SP  
ORIENTED WITH BEAM MAXIMA AT 290° AND 130°  
MAXIMUM ERP: 27.78 DBK

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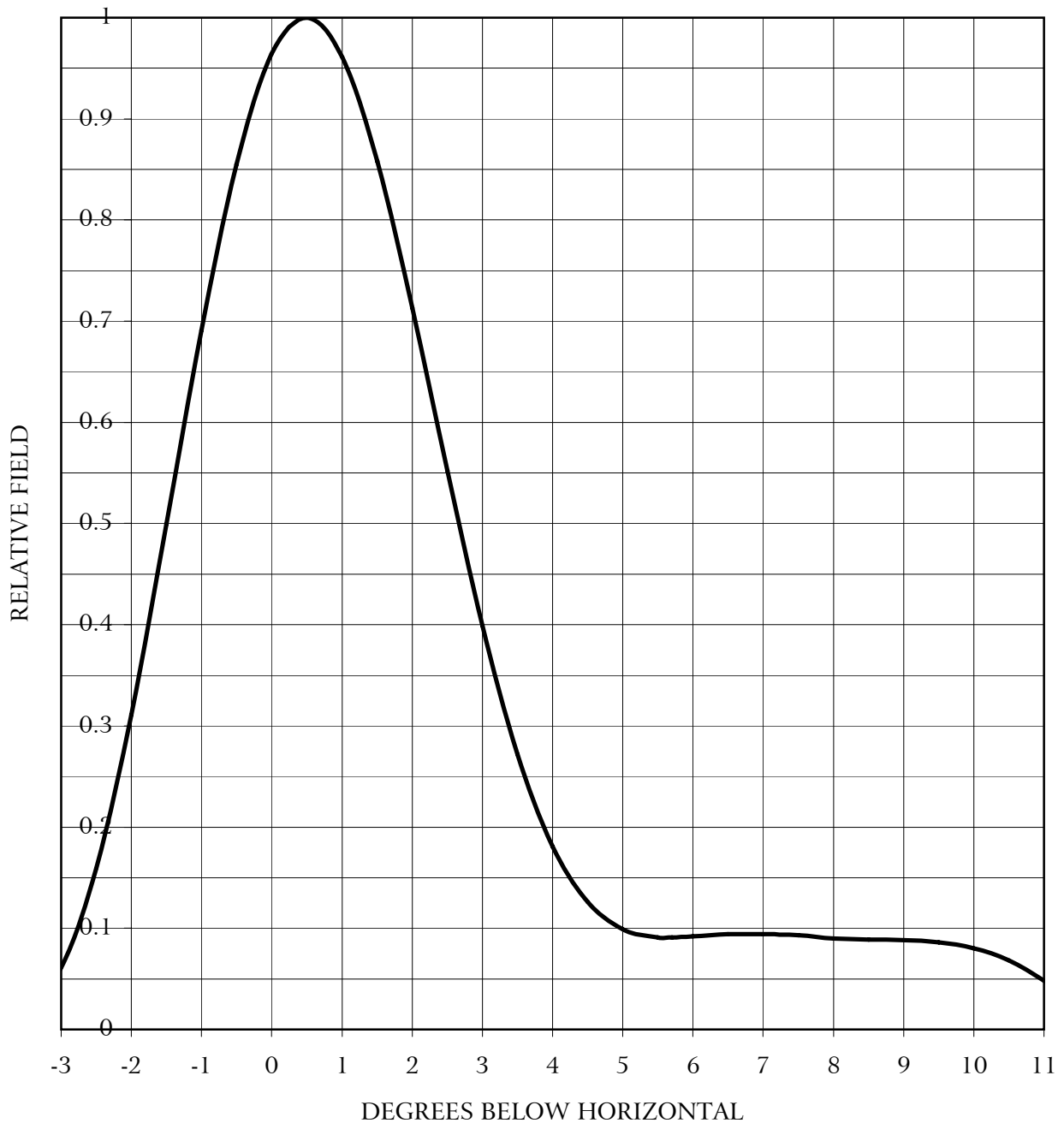
EXHIBIT E4C

# ELEVATION PATTERN

DIELECTRIC TFU-22GTH-R O6SP

RMS Gain at Main Lobe 19.0 (12.79 dB)  
RMS Gain at Horizontal 17.7 (12.48 dB)

Beam Tilt 0.5 deg  
Frequency 629.0 MHz

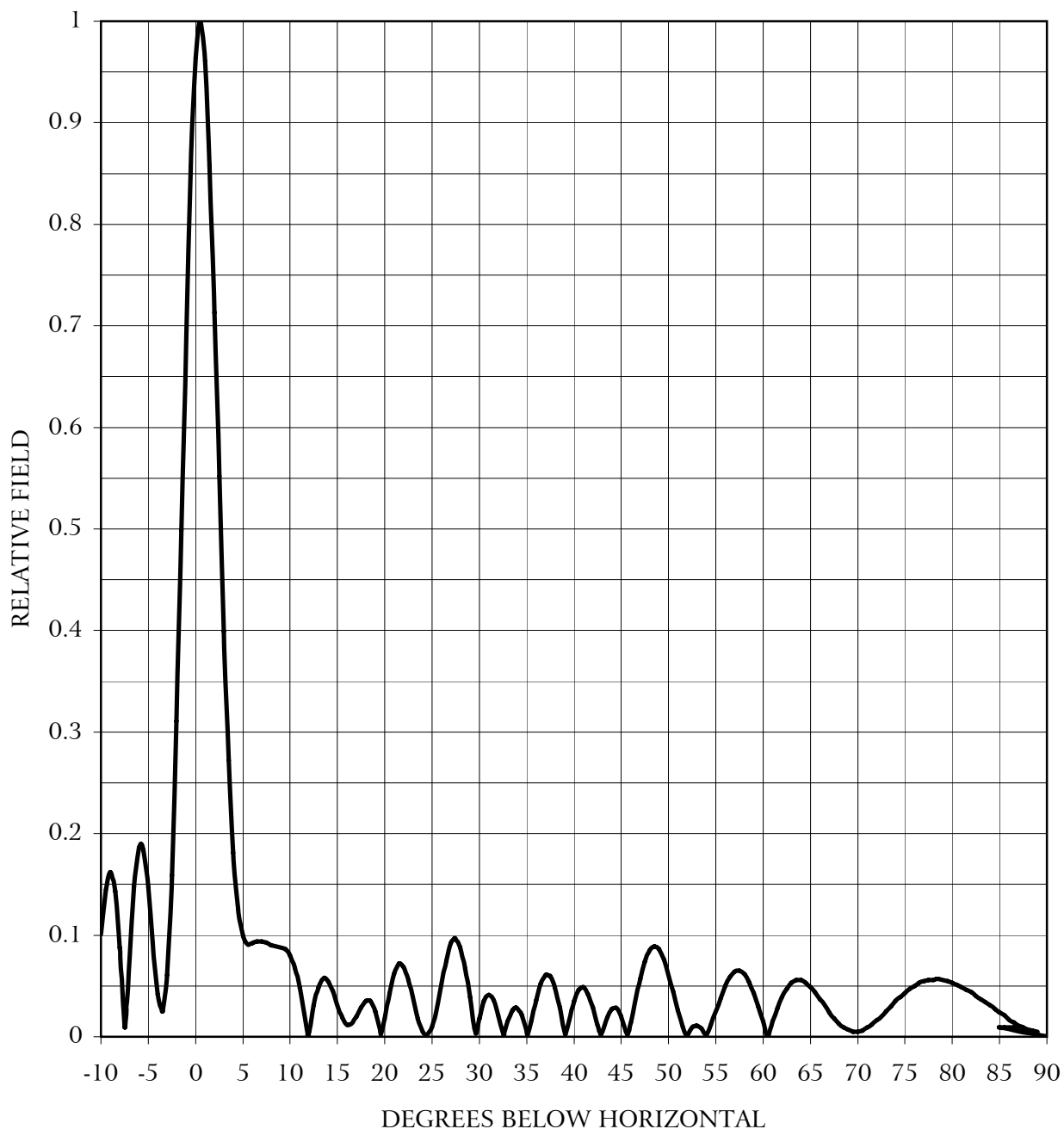


# ELEVATION PATTERN

DIELECTRIC TFU-22GTH-R O6SP

RMS Gain at Main Lobe 19.0 (12.79 dB)  
RMS Gain at Horizontal 17.7 (12.48 dB)

Beam Tilt 0.5 deg  
Frequency 629.0 MHz

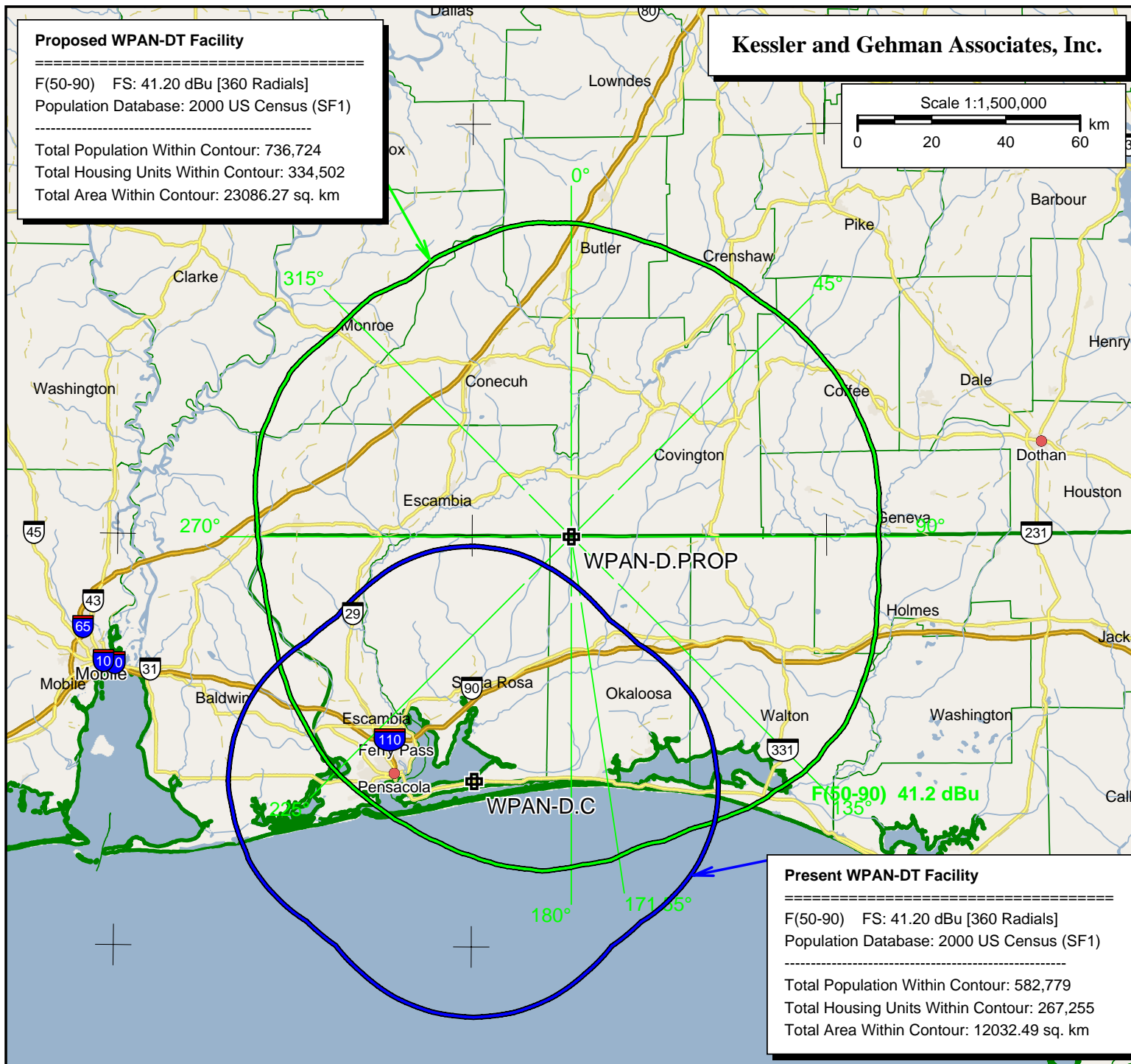


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EXHIBIT E4E

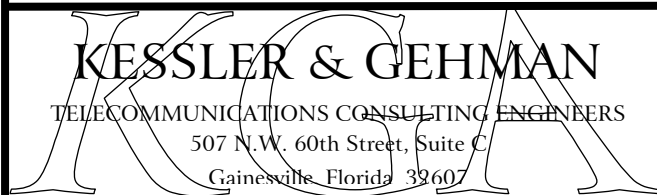




WPAN-DT

DISTANCES TO THE PREDICTED 41.2 DBU CONTOUR, HAAT ELEVATIONS, AND ERP

DISTANCE TO 41.29 DBU CONTOUR				DISTANCE TO 41.2 DBU CONTOUR			
AZIMUTH	ERP (KW)	(KM)	HAAT (M)	AZIMUTH	ERP (KW)	(KM)	HAAT (M)
N000°E	383.7	84.5	275.1	N180°E	458.3	89.1	297.4
N005°E	353.9	83.6	273.4	N185°E	499.0	90.4	302.2
N010°E	323.3	82.7	271.6	N190°E	533.0	90.5	297.9
N015°E	297.1	82.0	270.8	N195°E	556.8	90.4	294.5
N020°E	277.8	81.6	271.5	N200°E	571.5	90.2	291.3
N025°E	266.7	81.6	274.4	N205°E	578.6	89.9	288.5
N030°E	262.8	81.6	274.7	N210°E	580.7	89.5	285.3
N035°E	266.7	81.4	272.6	N215°E	578.6	89.6	285.8
N040°E	277.8	81.5	271.2	N220°E	571.5	89.6	286.6
N045°E	297.1	82.2	273.0	N225°E	556.8	89.5	288.0
N050°E	323.3	82.7	271.9	N230°E	533.0	88.9	286.4
N055°E	353.9	83.2	270.2	N235°E	499.0	87.7	282.0
N060°E	383.7	83.9	270.4	N240°E	458.3	87.2	283.7
N065°E	405.2	84.1	268.9	N245°E	415.8	86.1	281.8
N070°E	412.6	84.4	269.8	N250°E	379.0	84.9	278.5
N075°E	402.5	84.6	273.0	N255°E	356.9	84.2	277.0
N080°E	379.7	83.8	270.7	N260°E	355.1	83.8	274.6
N085°E	353.5	83.3	270.9	N265°E	378.5	84.4	275.1
N090°E	335.3	82.8	270.3	N270°E	423.4	84.5	269.5
N095°E	335.4	83.1	272.5	N275°E	481.6	85.2	266.3
N100°E	355.8	84.2	277.0	N280°E	539.3	86.4	268.5
N105°E	395.9	85.1	277.7	N285°E	581.5	87.2	269.2
N110°E	448.4	86.5	280.0	N290°E	600.0	87.7	270.8
N115°E	504.9	87.6	280.9	N295°E	589.5	87.7	272.0
N120°E	555.6	88.6	281.5	N300°E	555.6	87.8	275.8
N125°E	589.5	89.5	284.1	N305°E	504.9	86.3	271.8
N130°E	600.0	89.0	279.5	N310°E	448.4	84.6	266.9
N135°E	581.5	89.2	283.1	N315°E	395.9	84.2	270.9
N140°E	539.3	88.2	280.4	N320°E	355.8	84.1	276.9
N145°E	481.6	87.4	282.4	N325°E	335.4	82.7	269.6
N150°E	423.4	86.4	283.1	N330°E	335.3	82.4	267.0
N155°E	378.5	85.6	284.2	N335°E	353.4	83.7	273.8
N160°E	355.1	85.3	285.3	N340°E	379.7	83.9	271.6
N165°E	356.9	85.4	285.9	N345°E	402.5	84.5	272.4
N170°E	379.0	86.4	289.8	N350°E	412.6	85.1	275.1
N175°E	415.8	88.0	295.8	N355°E	405.2	85.0	275.4



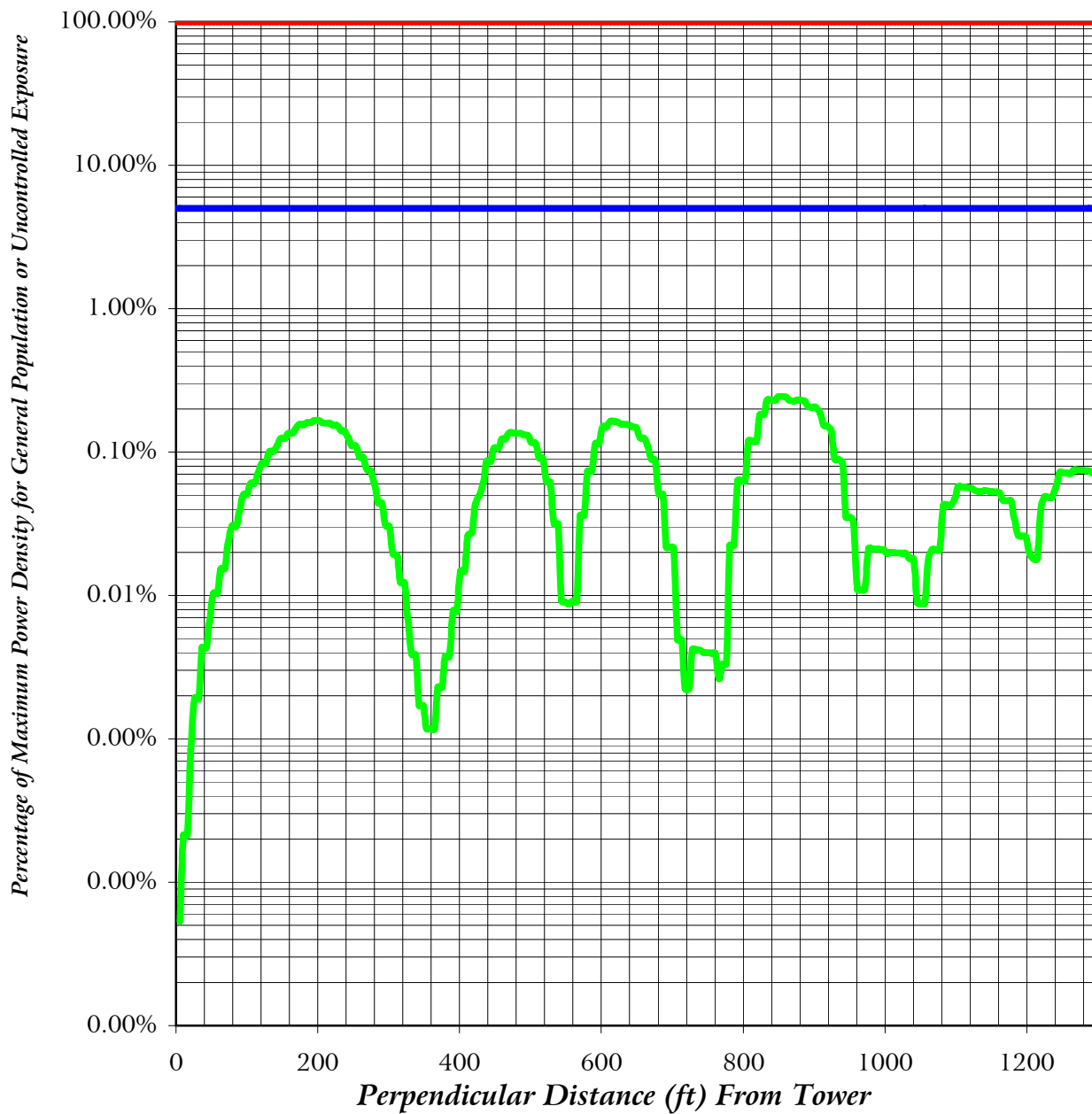
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FORT WALTON BEACH, FLORIDA

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EXHIBIT E5B



## FAR FIELD EXPOSURE TO RF EMISSIONS



- Maximum Allowable General Population or Uncontrolled Exposure
- 5 % of Maximum General Population or Uncontrolled Exposure
- Percentage of Maximum General Population or Uncontrolled Exposure

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EXHIBIT E7



METHODOLOGY AND EXPLANATION OF  
ENVIRONMENTAL IMPACT / RADIO FREQUENCY RADIATION  
HAZARD ANALYSIS

A theoretical analysis has been conducted of the human exposure to radio frequency radiation ("RFR") using the calculation methodology described in *OET Bulletin 65, Edition 97-01*. The RFR analysis is conducted pursuant to the following methodology:

Terrain<sup>1</sup> extraction is compiled from the proposed tower site to radial lengths of 0.25 miles in 0.001 mile increments for 360 radials. The power density is calculated for each terrain point at 6 feet above ground level using the elevation and azimuth pattern of the proposed broadcast antenna. The power density calculations are conducted using the lower edge of the proposed channel frequency. To account for ground reflections, a coefficient of 1.6 was included in the calculation.

The resulting cylindrical polar analysis is then summarized into a coordinate plane graph using the following methodology:

Starting from the origin the maximum calculated RFR value is determined among the 360 degree radials for each 0.001 mile increment, the value is then converted into a percentage of the maximum allowable general population or uncontrolled exposure and plotted as a function of perpendicular distance from the tower.

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<sup>1</sup> Terrain extraction is based upon a 3 arc second point spacing terrain database.